

2018

1918 Influenza - Slides

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THE 1918 INFLUENZA: IMPACT, IMPLICATIONS, AND UNCERTAINTY



WE REMEMBER. WE PREPARE.



THOSE WHO CANNOT REMEMBER THE
PAST ARE CONDEMNED TO REPEAT IT.

George Santayana

Pandemic vs. Epidemic





INFLUENZA PANDEMICS

- 1918: Spanish Influenza (H₁N₁)
- 1957: Asian Flu (H₂N₂)
- 1968: Hong Kong Flu (H₃N₂)
- 2009: Swine Flu (H₁N₁)



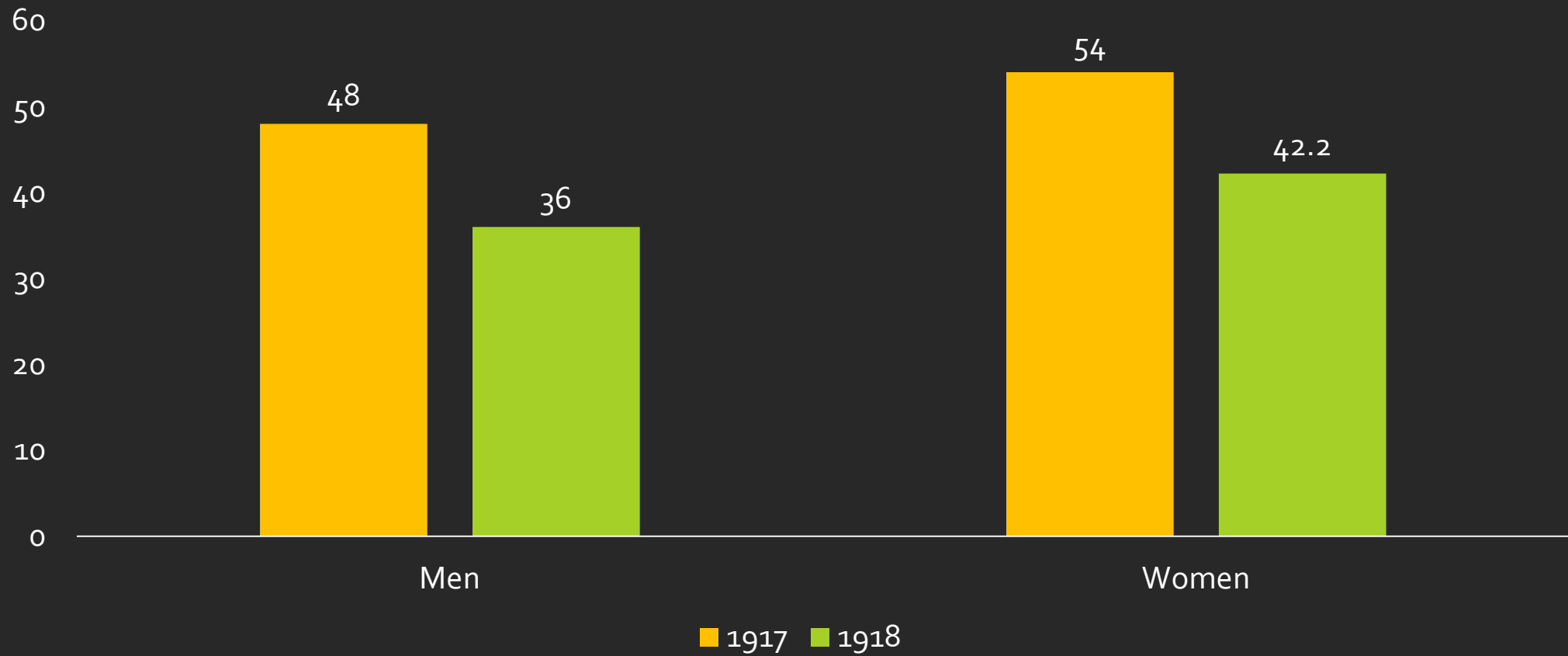
PATIENT ZERO

March 11

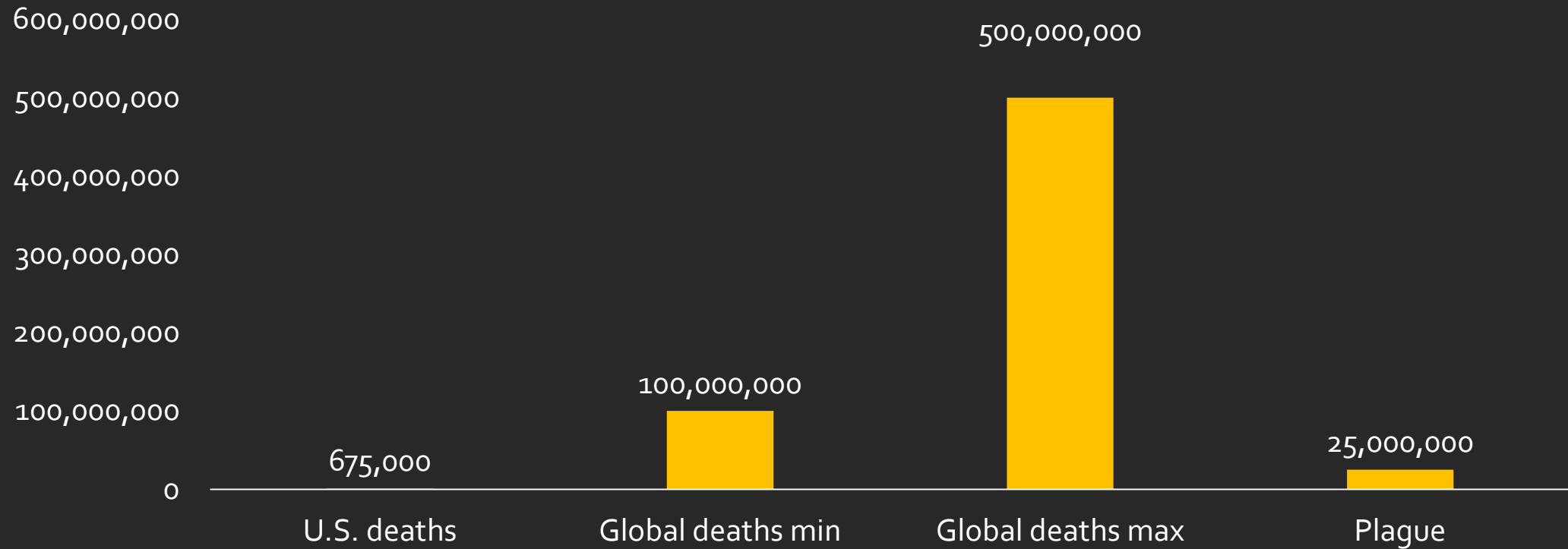
1918: SPANISH INFLUENZA

- Where did it come from?
- Average life span
- Minimal understanding
- Targeted young healthy individuals

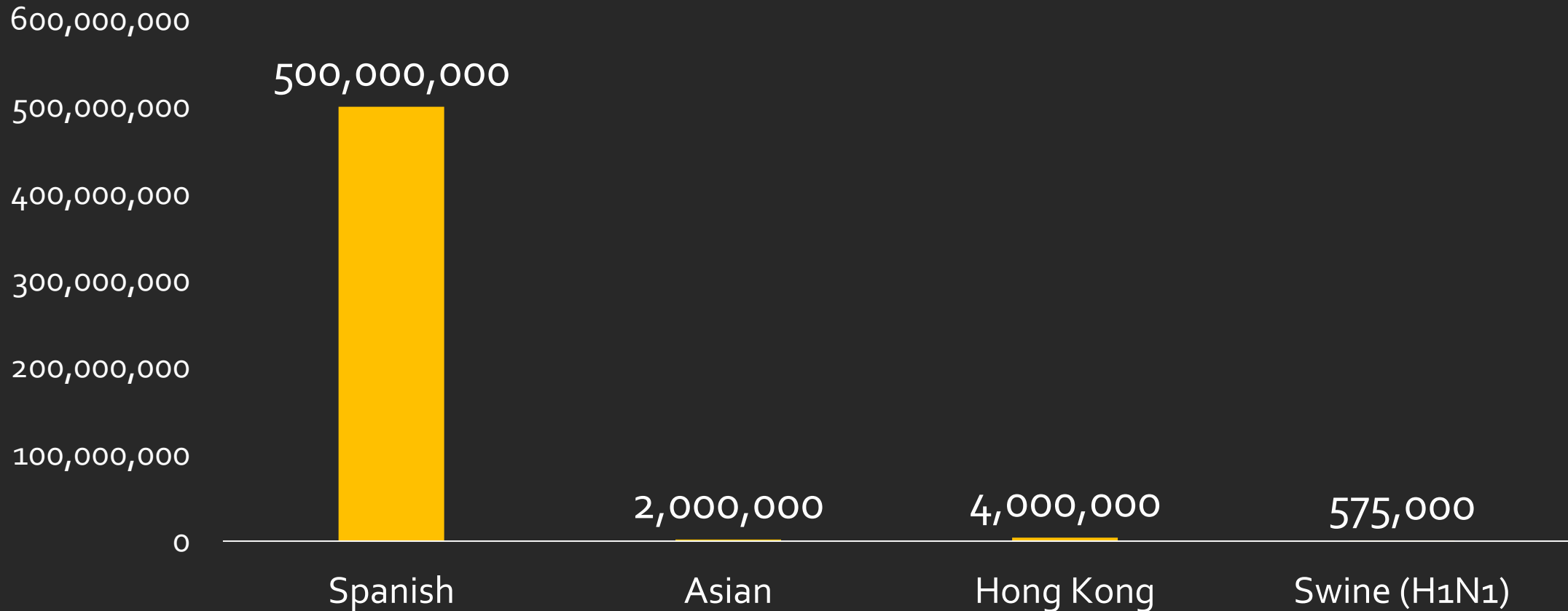
1917-1918 LIFE EXPECTANCY



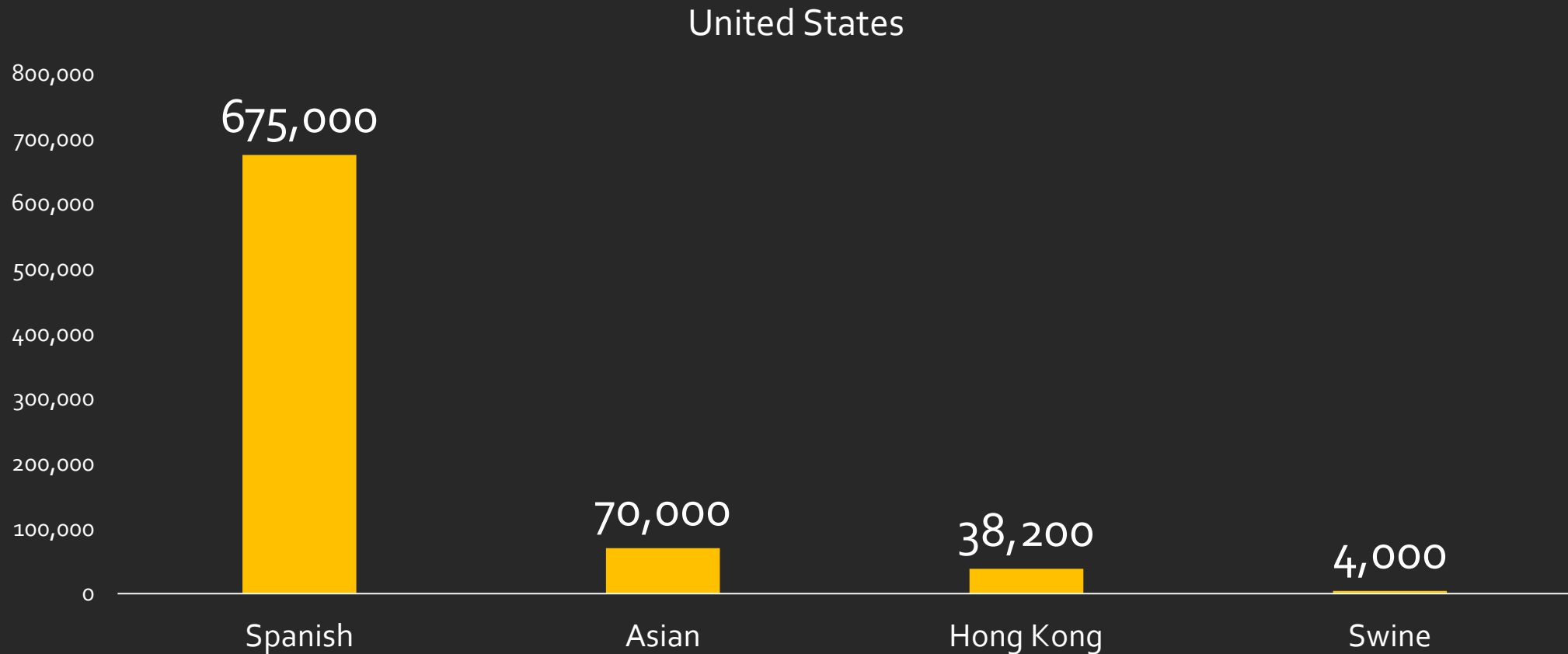
IN COMPARISON



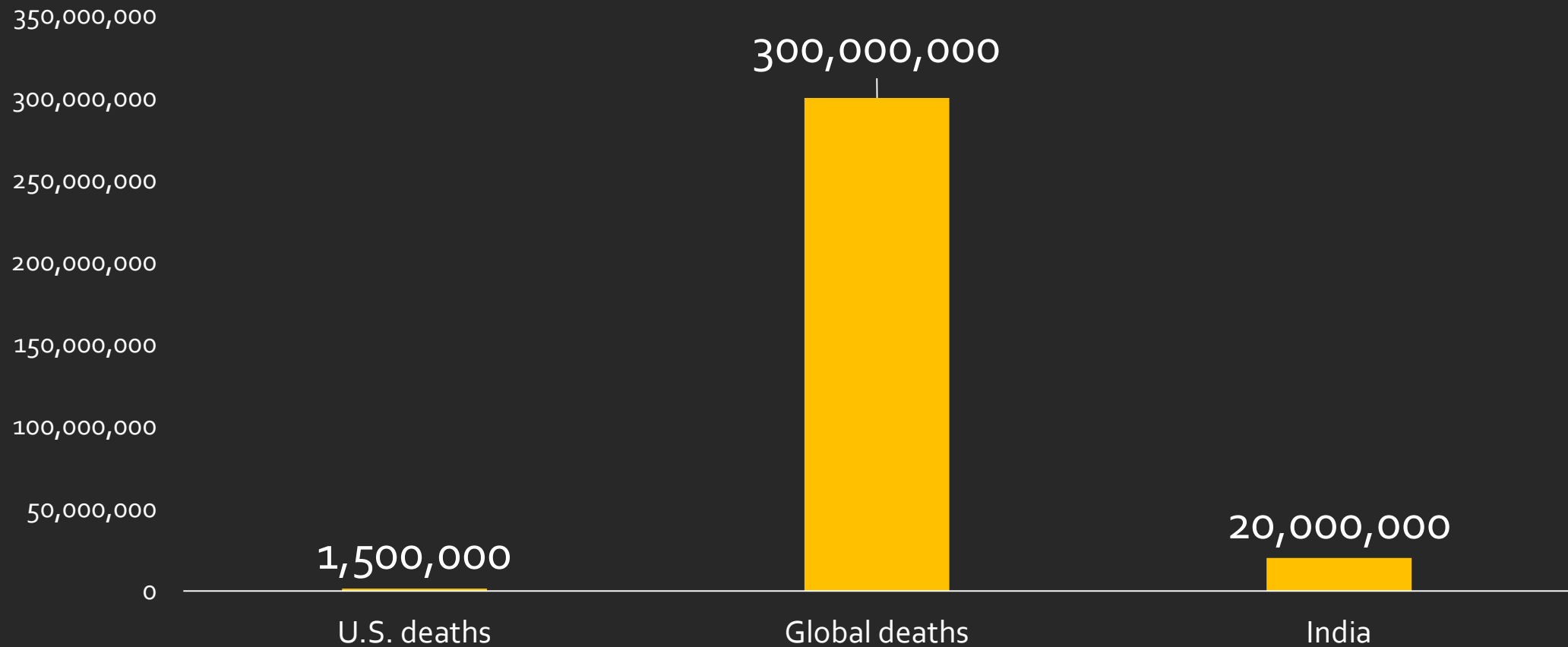
GLOBAL DEATHS FROM INFLUENZA PANDEMICS



UNITED STATES DEATHS FROM INFLUENZA

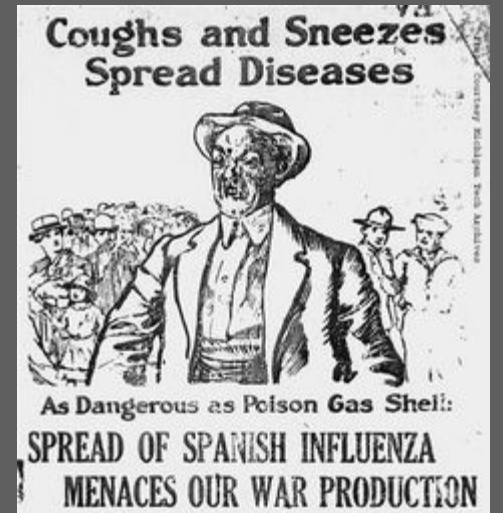


WHAT IF IT WERE TO HAPPEN TODAY?

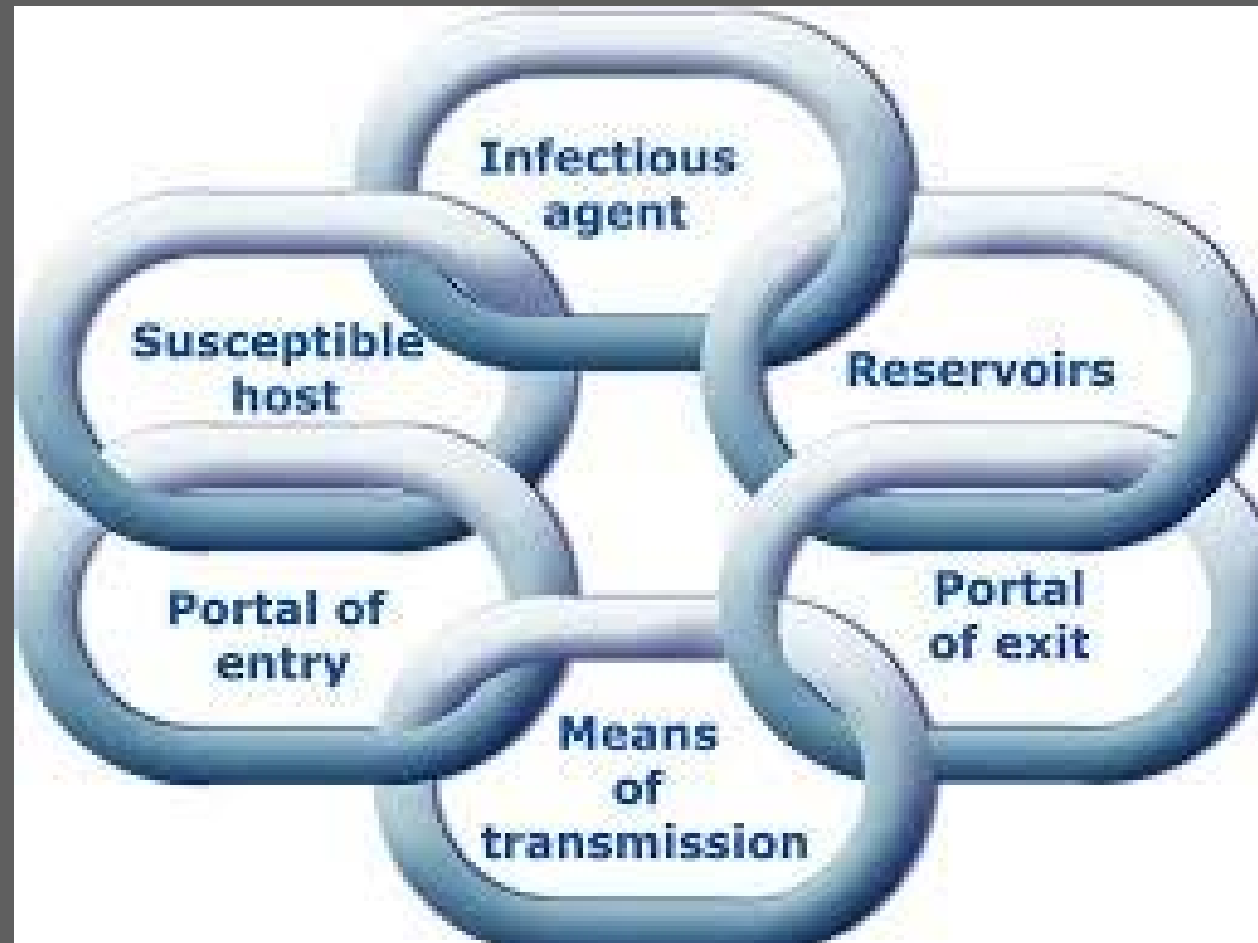


IN 1918...

- Limited care
- Difficulty in disposing of the dead
- No way to protect the healthy
- Virus could not be isolated
- Deaths produced large number of orphans
- Understanding of disease transmission
- Massive troop movement

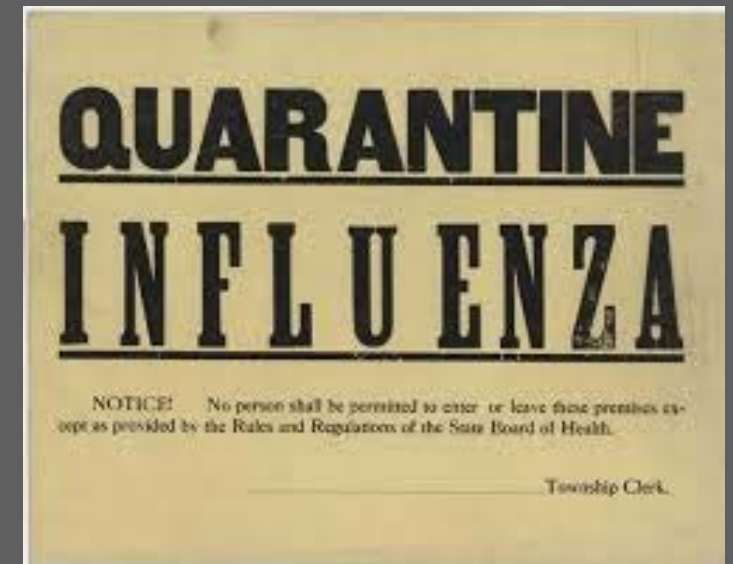
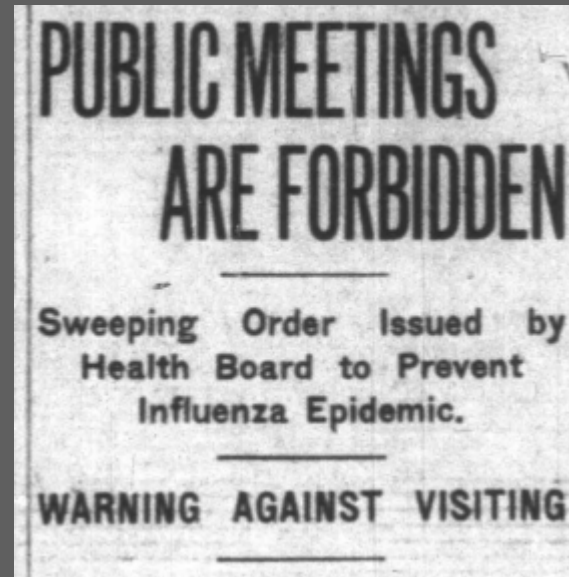


CHAIN OF INFECTION



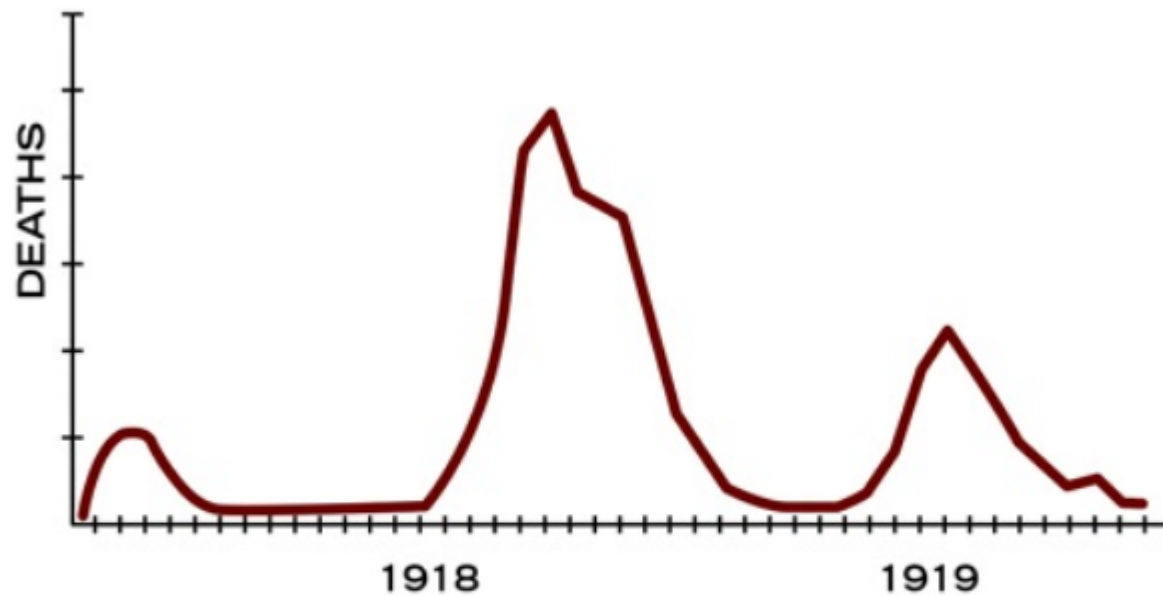
EARLY TREATMENTS

- Snake oils
- Quarantines
- Closing public establishments
- Funeral control





WAVES OF FLU



There were 3 different waves of illness during the pandemic, starting in March 1918 and subsiding by summer of 1919. The pandemic peaked in the U.S. during the second wave, in the fall of 1918. This highly fatal second wave was responsible for most of the U.S. deaths attributed to the pandemic.



Cold

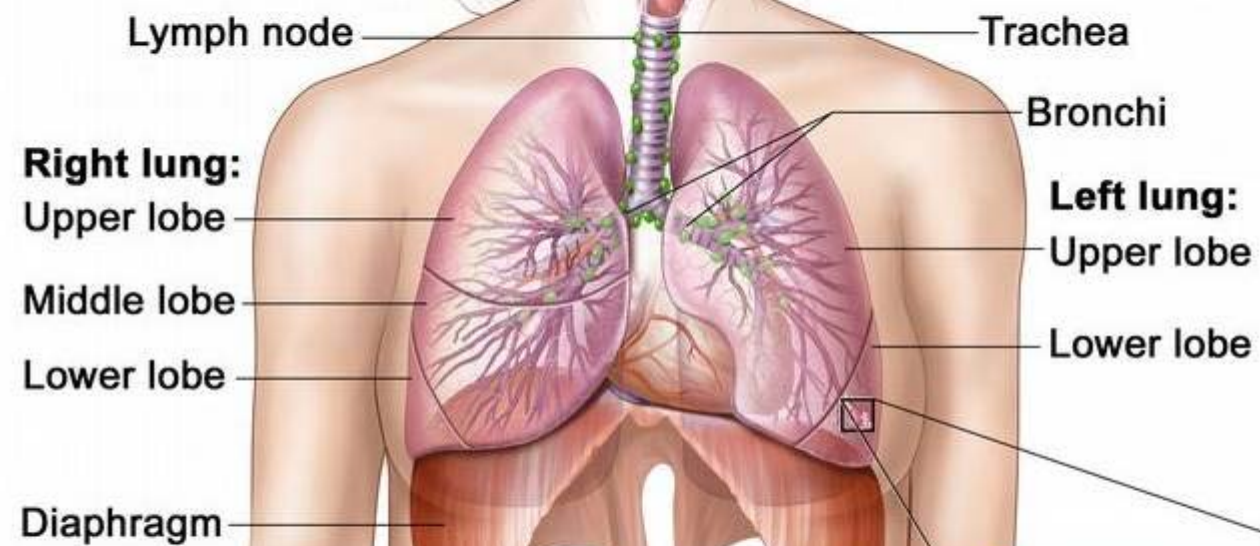
- Gradual
- Low grade fever
- Slight headache
- Stuffy or runny nose/sneezing
- Feeling tired
- Sore throat
- Mild to moderate hacking cough
- Near normal appetite

Flu

- **Sudden**
- **Fever of 100° F**
- **Muscle aches and pain**
- Loss of appetite
- Chills
- Nausea & vomiting
- Feeling exhausted
- Dry cough
- Severe headache
- Chest discomfort

DANGERS OF INFLUENZA

- Virus can destroy respiratory epithelium
- Acute Respiratory Distress Syndrome (ARDS)
 - Hyper-cytokinemias
 - Cytokine storm



This diagram illustrates the human respiratory system within a torso outline. The trachea is shown as a cartilaginous tube in the neck. It branches into the bronchi, which enter the lungs. The right lung is divided into three lobes (upper, middle, and lower), while the left lung has two (upper and lower). The diaphragm is positioned at the base of the thoracic cavity. A lymph node is shown in the neck area. A small box on the lower lobe of the left lung indicates the area shown in the magnified inset.

Lymph node

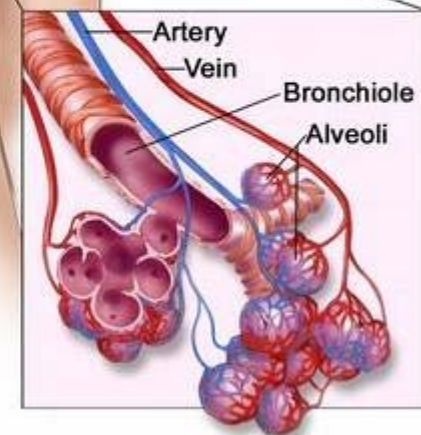
Trachea

Bronchi

Right lung:
Upper lobe
Middle lobe
Lower lobe

Left lung:
Upper lobe
Lower lobe

Diaphragm



ARDS

- Necrosis
- Dilatation of blood vessels
- Complications
 - Tissue scarring
 - Pneumothorax
 - Infections

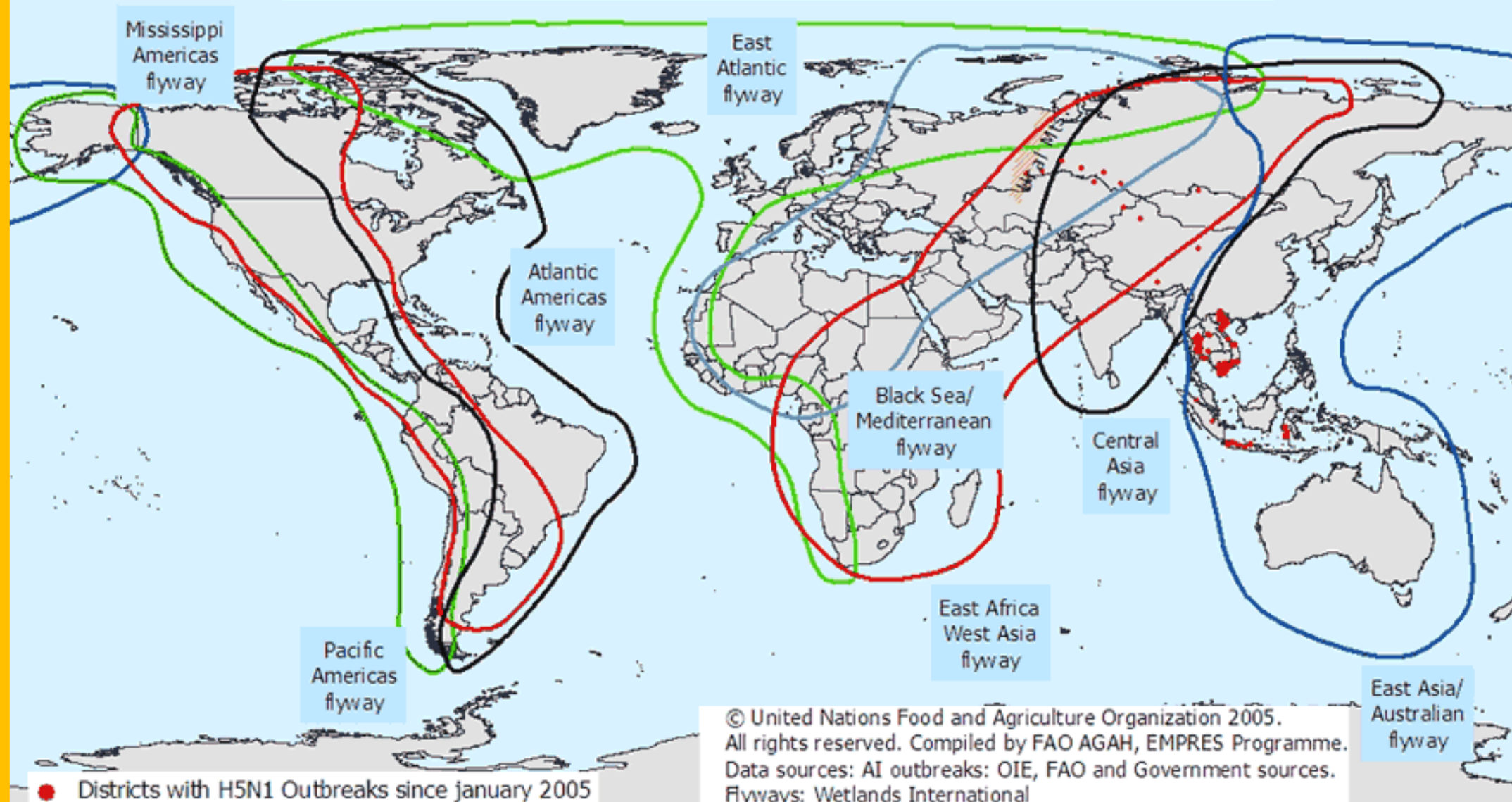
CHALLENGES

- Strains
- Understanding
 - Severity
 - Respiratory disease
- Vaccine
 - Development and concerns
- Migratory bird paths
- Flights per day & ease of travel



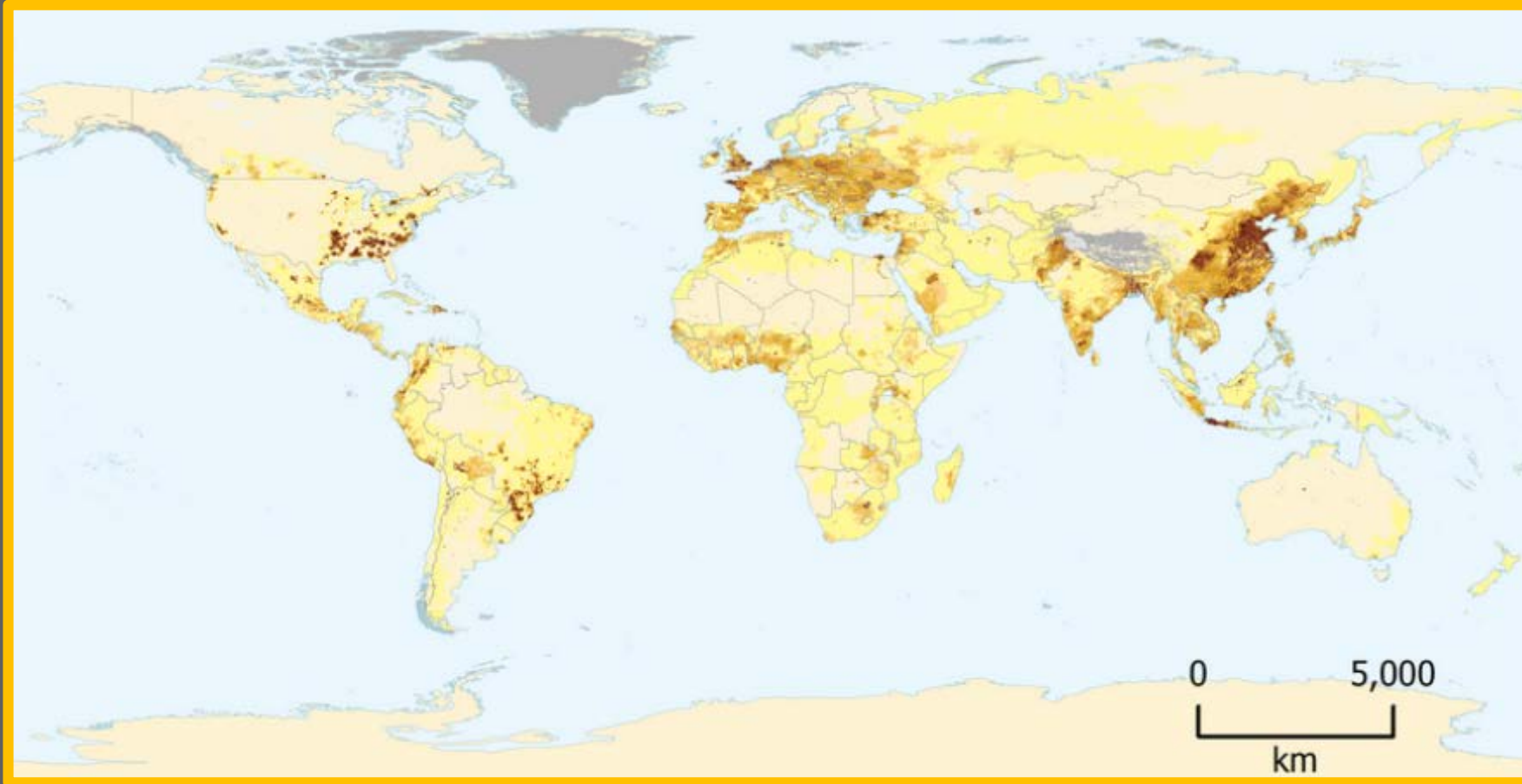
H5N1 outbreaks in 2005 and major flyways of migratory birds

Situation on 30 August 2005

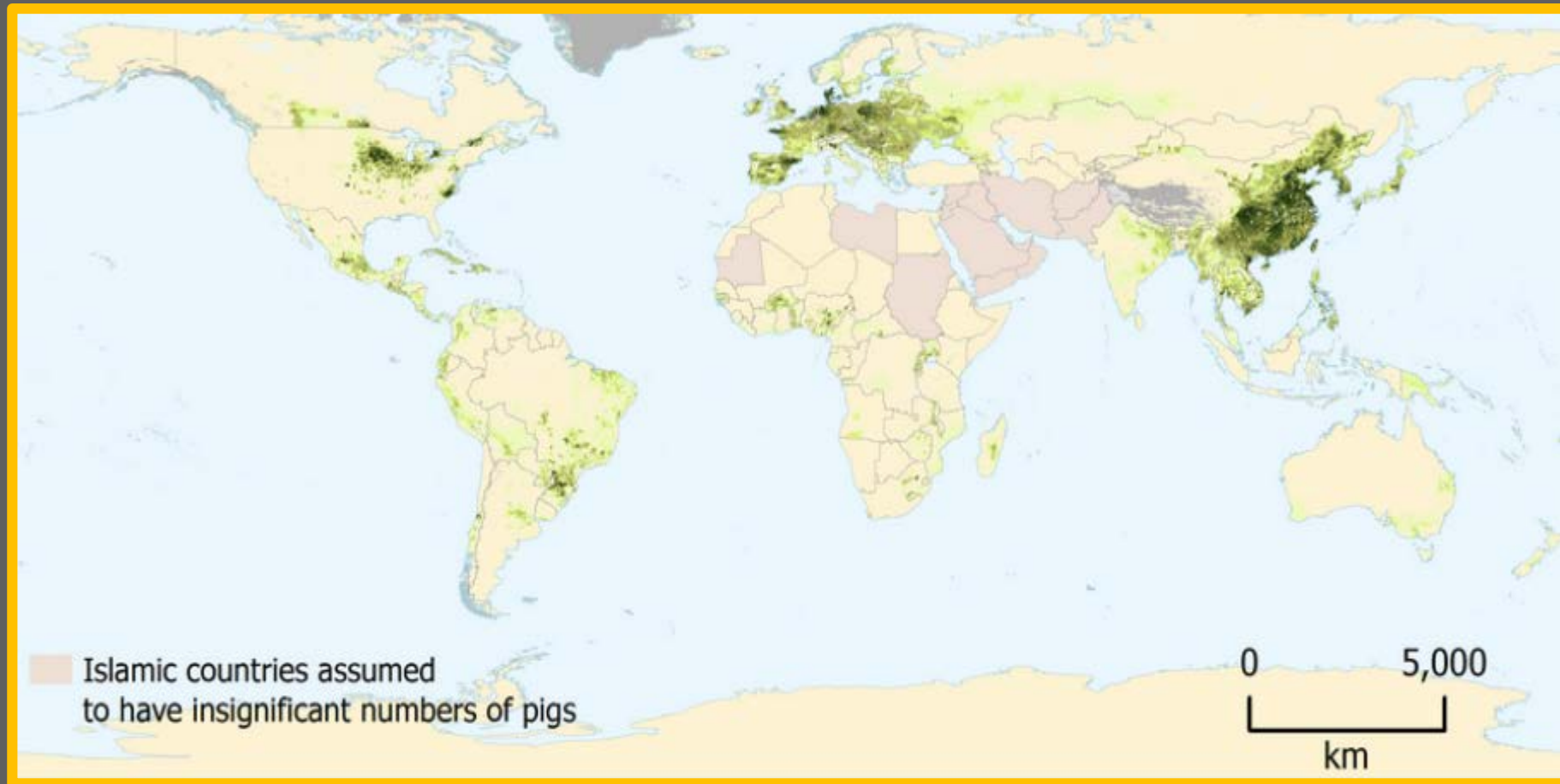




19.6 BILLION CHICKENS



980 MILLION SWINE



DAILY FLIGHT PATTERNS



PREVENTION

- Self-quarantine
- Social distancing
- Cough/sneeze etiquette
- Masks?
- Hand washing
- ***Vaccinate***



2018-2019 INFLUENZA SEASON

- A/Michigan/45/2015 (H1N1)pdm09-like virus
- A/Singapore/INFIMH-16-0019/2016 A(H3N2)-like virus
- B/Colorado/06/2017-like (Victoria lineage) virus

TREATMENT

- Antivirals – Tamiflu
- Fluids
- Rest
- Fever reducer
 - Acetaminophen
- NSAIDs
 - Ibuprofen
 - Naproxen
 - Aspirin



PANDEMIC INFLUENZA PLAN

1. Surveillance, Epidemiology, Laboratory Activities
2. Community Mitigation Measures
3. Medical Countermeasures
4. Health Care System Preparedness and Response
5. Communications and Public Outreach
6. Scientific Infrastructure and Preparedness
7. Domestic and International Response

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